Man with Altered Mentation after Trauma

Landon A. Jones, MD*
Mathew J. Sarsfield, MD†

* Department of Emergency Medicine, Cox South Emergency and Trauma Center, Springfield, Missouri
† Department of Emergency Medicine, State University of New York Upstate Medical University, Syracuse, New York

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A 37 year-old male presented after an altercation in which he was dragged by a vehicle. The patient was intoxicated and asking repetitive questions. He demonstrated significant facial trauma—including frank bloody discharge from both ears and dental trauma. His vitals signs were as follows: Temperature 36.8 C; Blood pressure: 125/88; Heart rate: 90; Respiratory rate: 24; O_2 sat: 100% room air. His portable chest x-ray can be seen below (Figure 1).

Secondary to his mechanism, intoxication, and chest radiograph results, he was sent for computed tomography (CT) imaging. Immediately post CT, his imaging was reviewed (Figure 2). Shortly thereafter, the patient's altered mentation worsened and he acutely decompensated.

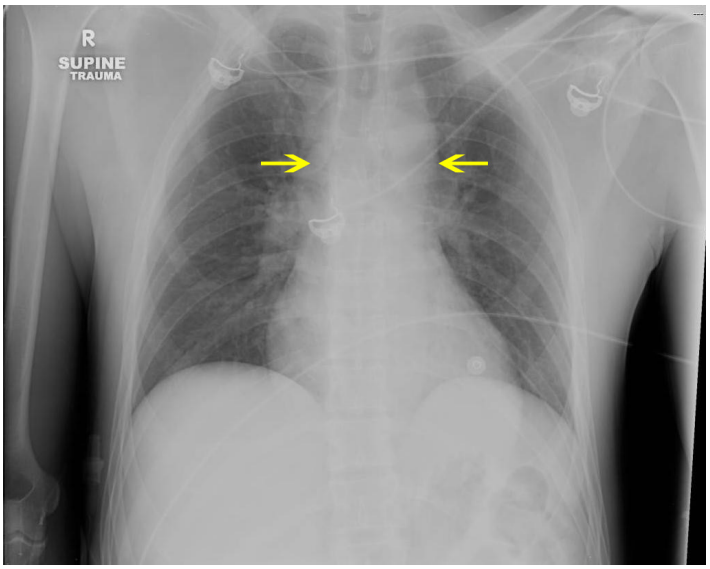

Figure 1. Chest radiograph demonstrating a widened upper mediastinum.

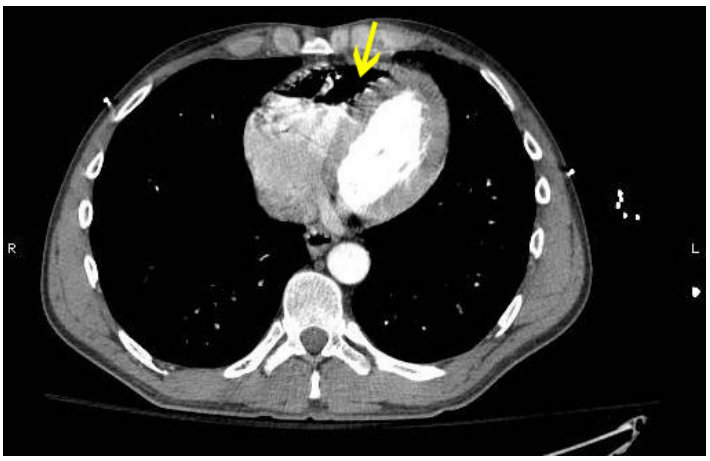

Figure 2. Computed tomography of the thorax with intravenous contrast demonstrates a large right ventricular air embolus.

DIAGNOSIS

Iatrogenic air embolism. Iatrogenic air embolism is a rare side-effect of invasive and surgical procedures. While rare, retrospective studies demonstrate mortality up to 23% and recent prospective literature demonstrates a 1-year mortality of 21%. Morbidity is higher.[1-5] Iatrogenic air emboli can be either arterial or venous. Arterial gas emboli (AGE) can manifest as chest pain, transient ischemic attack, stroke, or shock.[3,5-7] While most are asymptomatic, venous gas emboli (VGE) more commonly present as shortness of breath.[5, 6]

It is important, though, to recognize that VGE can readily convert to AGE via right-to-left shunting mechanisms such as pulmonary arterial-venous malformations and patent foramen ovale (PFO). A PFO is present in approximately 26-39% of the general population.[8-11] Additionally, it is important to remember that iatrogenic air emboli can occur secondary to procedures that we often consider routine in the emergency department, i.e., central line placement or—like our patient—CT with intravenous contrast.

In our case the patient acutely decompensated, was intubated, and received hyperbaric oxygen therapy. After

hyperbarics, the patient's status improved and he was extubated in the intensive care unit and later discharged without complications.

Address for Correspondence: Landon Jones, MD. 1950 S. Scenic Ave., Apt F108, Springfield, MO 65807. Email: Landon.JonesEM@gmail.com.

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